

**10698040 dialog search strategy**  
**METHOD OF DETERMINING IMPLIED VOLATILITY FOR AMERICAN OPTIONS**

Inventors search: Dialog Patent databases

Set	Items	Description
S1	0	AU=( HAIT, D ? OR HAIT D ? OR HAIT(2N)DAVID)
S2	0	AU=(HAIT, D? OR HAIT D? OR HAIT(2N)DAVID)

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Inventors search: Non patent literature databases

Set	Items	Description
S1	4	AU=(HAIT, D? OR HAIT D? OR HAIT(2N)DAVID)
S2	2	RD (unique items)

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 (c) 2011 PR Newswire Association Inc  
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 (c) 1999 PR Newswire Association Inc  
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 File 275:Gale Group Computer DB(TM) 1983-2011/Apr 15  
 (c) 2011 Gale/Cengage  
 File 621:Gale Group New Prod.Annou.(R) 1985-2011/Apr 06  
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 (c) 1999 The Gale Group  
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2/3,K/1 (Item 1 from file: 35)  
 DIALOG(R)File 35: Dissertation Abs Online  
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 01716164 ORDER NO: AADAA-I9948047

### **Essays on options markets**

**Author:** Hait, David J.

**Degree:** Ph.D.

**Year:** 1999

**Corporate Source/Institution:** New York University, Graduate School of Business

Administration ( 0868 )

**Source:** Volume 6010A of Dissertations Abstracts International.

PAGE 3740 . 104 PAGES

**Author:** Hait , David J.

---

2/3,K/2 (Item 1 from file: 139)

DIALOG(R)File 139: EconLit

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426354

**Title:** Price Barriers and the Dynamics of Asset Prices in Equilibrium

**Author:** Balduzzi, Pierluigi; Foresi, Silverio; Hait, David J.

**Author Affiliation:** NYU; NYU; NYU

**Journal Name:** Journal of Financial and Quantitative Analysis ,

**Journal Volume & Issue:** 32 2 ,

**Pages:** 137-59

**Publication Date:** 1997

**Language:** English

**Availability:** <http://depts.washington.edu/jfqa/>

**ISSN:** 0022-1090

**Document Type:** Journal Article

**Abstract Indicator:** Abstract **Author:** Balduzzi, Pierluigi; Foresi, Silverio; Hait, David J.

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Text search: Patent databases

Set	Items	Description
S1	85	(IMPLIED()(VOLATILITY OR RISK OR RISKINESS OR UNCERTAIN? OR IV)) AND ((DERIVATIVE OR DERIVATIVES OR (CALL OR PUT OR SELL-)))(OPTION OR OPTIONS) OR CONTRACT OR CONTRACTS OR FORWARD(2W-)(AGREEMENT OR AGREEMENTS) OR SWAPS OR SWAPTIONS OR FUTURES OR STRUCTURED()(NOTE OR NOTES) OR SYNTHETIC()(ASSET OR ASSETS) - OR HEDG? OR EQUITIES OR SECURITIES OR FRA)(N2)(PRICE OR COST - OR PRICING))
S2	514	(NEWTON()RAPHSON()METHOD)
S3	54886	((MULTIPLE OR LOGISTICAL OR TREE)(2N)(REGRESSION OR LATTICE OR DISPLAY))
S4	37	(DETERMIN??? OR DISCOVER? OR ESTIMATE??? OR ASSESS OR CALC- ULAT???) (2N)(IMPLIED()(VOLATILITY OR RISK OR RISKINESS OR UNC- ERTAIN? OR IV))
S5	4	S1 AND S3
S6	1	S4 AND S5

S7 1 S2 AND S4  
 S8 1 S7 NOT S6  
 S9 23 S1 AND S4  
 S10 23 IDPAT (sorted in duplicate/non-duplicate order)  
 S11 23 IDPAT (primary/non-duplicate records only)

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 6/3K/1 (Item 1 from file: 349)  
 DIALOG(R)File 349: PCT FULLTEXT  
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 01226970

**FINANCIAL PORTFOLIO MANAGEMENT AND ANALYSIS SYSTEM AND METHOD**  
**SYSTEME ET PROCEDE D'ANALYSE ET DE GESTION DE PORTEFEUILLE**  
**FINANCIER**

**Patent Applicant/Patent Assignee:**

- **FINSAGE INC**  
 1020 Twin Terrace, Round Rock, TX 78664; US; US (Residence); US  
 (Nationality); (For all designated states except: US)

**Patent Applicant/Inventor:**

- **SANT Rajiv Raymond**  
 1020 Twin Terrace, Round Rock, TX 78664; US; US (Residence); US  
 (Nationality); (Designated only for: US)

	Country	Number	Kind	Date
Patent	WO	200533910	A2-A3	20050414
Application	WO	2004US33256		20041007
Priorities	US	2003509641		20031008

**Detailed Description:**

...summary, this process enables a user to: value options; validate valuation with the help of implied volatility ; and estimate option decay properties for their impact on a risk

management strategy; and, simulate portfolio performance...DB = U1

$$pu = [e(r-D)A - DBI] / (UB - DO)$$

The payoffs along a node- tree lattice is projected until option expiration and then discounted back at the risk free rate. Time ... enters the stock ticker symbol and the required inputs with the resulting output presenting the implied volatility computed under different dividend and exercise assumptions for a quick and easy comparison. Modules included... directors of public companies. The latter are difficult to value in the absence of an implied volatility estimate . Results of the implied volatility module can also be verified with the help of the historical stock return volatility computed... The user observes the following results/output (refer to Fig. 67)

The tabulated output shows.

implied volatility based on early exercise (American) assumption

implied volatility based on no early exercise (European)

assumption

[0269] Module 12. Forward Option Value Simulation with... sampled generating a probability distribution of option values. Future stock as well as call and put option price distributions are provided as outputs in the form of bar graphs. The user can query... to Fig. 71)

The graphical output presents, at the simulation date in the future.

the call option price distribution in a bar chart format on the basis of the number of simulations specified... format on the basis of the number of simulations specified (refer to Fig.

73) the put option price distribution in a bar chart format on the basis of the number of simulations specified... The user can query the module to estimate the probability that the

future call or put option price will equal, exceed or be under a specified amount (refer to Fig. 72)

The user...

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8/3K/1 (Item 1 from file: 349)

DIALOG(R)File 349: PCT FULLTEXT

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01213391

**ENHANCED PARIMUTUEL WAGERING**

**PARI DU TYPE PARI MUTUEL AMELIORE**

**Patent Applicant/Patent Assignee:**

- **LONGITUDE INC**  
2 Hudson Place, Hoboken, NJ 07030; US; US (Residence); US (Nationality); (For all designated states except: US)

**Patent Applicant/Inventor:**

- **LANGE Jeffrey**  
3 East 84th Street, Apt. 3, New York, NY 10028; US; US (Residence); US (Nationality); (Designated only for: US)

- **BARON Kenneth Charles**  
51 West 86th Street, Apt. 602, New York, NY 10024; US; US (Residence); US (Nationality); (Designated only for: US)
- **WALDEN Charles**  
43 Glenwood Road, Montclair, NJ 07043; US; US (Residence); US (Nationality); (Designated only for: US)
- **HARTE Marcus**  
389 Garretson Road, Bridewater, NJ 08807; US; US (Residence); IE (Nationality); (Designated only for: US)

	Country	Number	Kind	Date
Patent	WO	200519986	A2-A3	20050303
Application	WO	2004US25434		20040806
Priorities	US	2003640656		20030813

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11/5/1 (Item 1 from file: 350)

DIALOG(R)File 350: Derwent WPIX

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0013350484 *Drawing available*

WPI Acc no: 2003-438329/200341

XRPX Acc No: N2003-349650

**Financial derivatives pricing method involves calculating implied volatility in price of underlying asset based on mathematical program equilibrium constraints**

Patent Assignee: UNIV JOHNS HOPKINS (UYJO)

Inventor: HUANG J; PANG J

Patent Family ( 1 patents, 1 countries )							
Patent Number	Kind	Date	Application Number	Kind	Date	Update	Type
US 6546375	B1	20030408	US 1999400855	A	19990921	200341	B

#### Alerting Abstract US B1

NOVELTY - The price data is retrieved, and a computer program is executed to calculate implied volatility in price of underlying asset based on mathematical program equilibrium constraints (MPEC). A forward price of financial derivatives is generated based on retrieved price data and calculated implies volatility. A report is issued to a user regarding generated forward price.

DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

1. forward pricing model implementation method;
2. financial derivative pricing apparatus;
3. financial instrument engine; and
4. article of manufacture comprising machine readable storage medium storing control program.

USE - For determining price of financial or economic instruments such as vanilla American options limited to either buying or selling an underlying asset.

ADVANTAGE - Determines forward price of financial derivatives accurately.

DIALOG(R)File 348: EUROPEAN PATENTS  
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11/5/2 (Item 2 from file: 348)  
03570084

**A method for pricing financial instruments**

Verfahren zur Preisfindung finanzieller Instrumente

Procede permettant de fixer le prix d'instruments financiers

**Patent Assignee:**

- **Superderivatives Inc** (100817537)  
7 Times Square, Suite 3501,; New York Ny NY 10036 (US)  
(Applicant designated States: all)

**Inventor:**

- **Gershon, David**  
6 Stimatzky Street Apt. 62; Tel Aviv; (IL)

	Country	Number	Kind	Date	
Patent	EP	2320372	A1	20110511	(Basic)
Application	EP	10191976		20010413	
Priorities	US	197622	P	20000413	

**Abstract EP 2320372 A1**

A method for providing a bid price and/or an offer price of an option relating to an underlying asset, the method including the steps of receiving first input data corresponding to a plurality of parameters defining the option, receiving second input data corresponding to a plurality of current market conditions relating to the underlying value, computing a corrected theoretical value of the option based on the first and second input data (110), computing a bid/offer spread of the option based on the first and input data (116), computing a bid price and/or an offer price of the option based on the corrected theoretical value and the bid/offer spread (118), and providing an output corresponding to the bid price and/or the offer price of the option.

DIALOG(R)File 348: EUROPEAN PATENTS  
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11/5/5 (Item 5 from file: 348)  
01667647

**Method and system for simulating implied volatility surfaces for basket option pricing**

Verfahren und System zur Simulation von implizierten Volatilitätsflächen für die

Kalkulation von Basketoptionspreisen  
Methode et systeme pour la simulation des surfaces de volatilité implicite pour le calcul du prix d'une option sur un panier

**Patent Assignee:**

- **Goldman, Sachs & Co.** (4014300)  
One New York Plaza; New York, NY 10004 (US)  
(Applicant designated States: all)

**Inventor:**

- **Browne, Sid**  
1053 East 19th Street; Brooklyn, NY 11230; (US)
- **Maghakian, Arthur**  
500 East 63rd Street, Apt. 10J; New York, NY 10021; (US)

	Country	Number	Kind	Date	
Patent	EP	1369805	A1	20031210	(Basic)
Application	EP	2003291264		20030527	
Priorities	US	160469		20020531	

**Abstract EP 1369805 A1**

A method and system for simulating changes in volatility for a price of a particular option on an underlying financial instrument is disclosed. A volatility surface model having at least one surface parameter is provided along with a set of volatilities for a plurality of options on the underlying financial instrument. The set of volatilities is analyzed to determine an initial value for each surface parameter which, when used in the surface model, defines a surface approximating the set of volatilities. The values of the surface parameters are then evolved using an appropriate evolution function. A volatility value for a particular option is extracted from the volatility surface defined by the evolved surface parameter values. The extracted volatility value can then be used in an option pricing model to provide a price of the particular option. The volatility of a basket options valued relative to the performance of multiple components can be simulated by determining the value of surface parameters for options on the component securities and then combining the component surface parameters to determine surface parameters for a volatility surface of the basket.

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Text Search: Non patent literature: abstract databases.

Set Items Description

S1 471 (IMPLIED)(VOLATILITY OR RISK OR RISKINESS OR UNCERTAIN? OR  
IV)) AND ((DERIVATIVE OR DERIVATIVES OR (CALL OR PUT OR SELL-  
)))(OPTION OR OPTIONS) OR CONTRACT OR CONTRACTS OR  
FORWARD(2W-



)(AGREEMENT OR AGREEMENTS) OR SWAPS OR SWAPTIONS OR  
 FUTURES OR  
 STRUCTURED()(NOTE OR NOTES) OR SYNTHETIC()(ASSET OR ASSETS)  
 -  
 OR HEDG? OR EQUITIES OR SECURITIES OR FRA)(N2)(PRICE OR COST -  
 OR PRICING))  
 S2 3736 (NEWTON()RAPHSON()METHOD)  
 S3 37082 ((MULTIPLE OR LOGISTICAL OR TREE)(2N)(REGRESSION OR  
 LATTICE  
 OR DISPLAY))  
 S4 73 (DETERMINE??? OR DISCOVER? OR ESTIMATE??? OR ASSESS OR  
 CALC-  
 ULAT???) (2N)(IMPLIED() (VOLATILITY OR RISK OR RISKINESS OR UNC-  
 CERTAIN? OR IV))  
 S5 0 S1 AND S3  
 S6 0 S1 AND S2  
 S7 3 (S3 OR S4) AND S2  
 S8 3 RD (unique items)  
 S9 0 S8 NOT PY>2002  
 S10 27 S1 AND (S3 OR S4)  
 S11 27 RD (unique items)  
 S12 13 S11 NOT PY>2002

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 (c) 2002 Gale/Cengage  
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 8/3,K/1 (Item 1 from file: 2)  
 DIALOG(R)File 2: INSPEC  
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11793627

Title: Combining classifiers in a tree structure

**Author(s):** Woloszynski, T.<sup>1</sup>; Kurzynski, M.<sup>1</sup>

**Affiliation(s):**

<sup>1</sup> Dept. of Syst. & Comput. Networks, Wroclaw Univ. of Technol., Wroclaw, Poland

**Email:** tomasz.woloszynski@pwr.wroc.pl; marek.kurzynski@pwr.wroc.pl

**Inclusive Page Numbers:** 785-90

**Publisher:** IEEE, Piscataway, NJ

**Country of Publication:** USA

**Publication Date:** 2008

**Conference Title:** 2008 International Conference on Computational Intelligence for Modelling Control & Automation (CIMCA 2008)

**Conference Date:** 10-12 Dec. 2008

**Conference Location:** Vienna, Austria

**ISBN:** 978-0-7695-3514-2

**U.S. Copyright Clearance Center Code:** 978-0-7695-3514-2/08/\$25.00

**Item Identifier (DOI):** [10.1109/CIMCA.2008.22](https://doi.org/10.1109/CIMCA.2008.22)

**Language:** English

**Subfile(s):** C (Computing & Control Engineering)

**INSPEC Update Issue:** 2009-032

**Copyright:** 2009, The Institution of Engineering and Technology

**Abstract:** ...a tree structure is then compared with other iteratively built classifiers: Adaboost.MH and MART (multiple additive regression trees). The experiments were conducted with the usage of well-known databases from the UCI...

**Descriptors:** decision making; Newton - Raphson method ; pattern classification; regression analysis; tree data structures

**Identifiers:** tree structure; Newton-Raphson numerical optimization; iteratively built classifiers; Adaboost.MH; multiple additive regression trees; classification problems; real-life decision making processes; coefficient fitting; classifier combining; weighted average; majority...

12/3,K/1 (Item 1 from file: 35)

DIALOG(R)File 35: Dissertation Abs Online

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01684883 ORDER NO: AAD99-16402

**OPTION PRICING AND HIGHER ORDER MOMENTS OF THE RISK-NEUTRAL PROBABILITY DENSITY FUNCTION (EDGEWORTH EXPANSION)**

**Author:** KOCHARD, LAWRENCE EDWARD

**Degree:** PH.D.

**Year:** 1999

**Corporate Source/Institution:** UNIVERSITY OF VIRGINIA ( 0246 )

**Source:** Volume 6001A of Dissertations Abstracts International.

PAGE 201 . 182 PAGES

...has been the pre-eminent model used by financial economists and option market participants for pricing derivatives . The model assumes that the log-return of an asset over any time period is... ..of which the Black-Scholes option pricing formula is a special case.

In Chapter Three estimates of the implied risk -neutral pdf of the log-return on the

S&P 500 index are obtained...

12/3,K/6 (Item 1 from file: 139)

DIALOG(R)File 139: EconLit

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783744

**Title:** Is Implied Volatility an Informationally Efficient and Effective Predictor of Future Volatility?

**Author:** Ederington, Louis; Guan, Wei

**Author Affiliation:** U OK; DE State U

**Journal Name:** Journal of Risk ,

**Journal Volume & Issue:** 4 3 ,

**Pages:** 29-46

**Publication Date:** 2002

**Language:** English

**Availability:** <http://www.thejournalofrisk.com/>

**ISSN:** 1465-1211

**Document Type:** Journal Article

**Abstract Indicator:** Abstract

**Title:** Is Implied Volatility an Informationally Efficient and Effective Predictor of Future Volatility?

**Abstract:** We examine how well implied volatility forecasts future stock market volatility. If markets are efficient and the option pricing model is correct, the implied volatility calculated from option prices should be an unbiased and informationally efficient predictor of future volatility; that... ..available information, including the asset's price history. However, numerous studies have found that the implied volatility forecast is biased and/or is not informationally efficient. We reexamine this issue using S... ..than the OEX options market considered in most previous studies. Our findings are that, first, implied volatility has strong predictive power and generally subsumes the information in historical volatility; second, prediction and...

**TEXT:**

**Descriptor(s) (1991 to present):** ...G120); Contingent Pricing ; Futures Pricing ; option pricing (

**Descriptor(s) (Pre-1991):**

12/3,K/7 (Item 2 from file: 139)

DIALOG(R)File 139: EconLit

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685303

**Title:** Bayesian Forecasting of Options Prices: A Natural Framework for Pooling Historical and Implied Volatility Information

**Author:** Darsinos, Theofanis; Satchell, Stephen

**Author Affiliation:** Unlisted; Unlisted

**Publication Information:** Department of Applied Economics, University of Cambridge, Cambridge Working Papers in Economics

**Publication Date:** 2001

**Language:** English

**Availability:** <http://www.econ.cam.ac.uk/dae/repec/cam/pdf/wp0116.pdf>

**Document Type:** Working Paper

**Abstract Indicator:** Abstract

**Abstract:** ...use implied or historical volatilities. We find no evidence to suggest that standard procedures using implied volatility estimates are redundant in explaining market options prices.

**TEXT:**

**Descriptor(s) (1991 to present):** ...C530); Contingent Pricing ; Futures Pricing ; option pricing (...G130); Bayesian, forecasting, implied volatility , option pricing

**Descriptor(s) (Pre-1991):**

12/3,K/12 (Item 7 from file: 139)

DIALOG(R)File 139: EconLit

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458739

**Title:** Determining the Implied Volatility for American Options Using the QAM

**Author:** Kutner, George W.

**Author Affiliation:** Marquette U

**Journal Name:** Financial Review ,

**Journal Volume & Issue:** 33 1 ,

**Pages:** 119-30

**Publication Date:** 1998

**Language:** English

**Availability:** <http://www3.interscience.wiley.com/journal/118504820/home>

**ISSN:** 0732-8516

**Document Type:** Journal Article

**Abstract Indicator:** Abstract

**Title:** Determining the Implied Volatility for American Options Using the QAM

**Descriptor(s) (1991 to present):** Contingent Pricing ; Futures Pricing ; option pricing (

**Descriptor(s) (Pre-1991):**

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### **Text Search: Non Patent literature: full text databases**

Set	Items	Description
S1	1143	((IMPLIED()(VOLATILITY OR RISK OR RISKINESS OR UNCERTAIN? OR IV)) AND ((DERIVATIVE OR DERIVATIVES OR (CALL OR PUT OR SELL-)))(OPTION OR OPTIONS) OR CONTRACT OR CONTRACTS OR FORWARD(2W-))(AGREEMENT OR AGREEMENTS) OR SWAPS OR SWAPTIONS OR FUTURES OR STRUCTURED()(NOTE OR NOTES) OR SYNTHETIC()(ASSET OR ASSETS) - OR HEDG? OR EQUITIES OR SECURITIES OR FRA)(N2)(PRICE OR COST - OR PRICING))
S2	194	(NEWTON()RAPHSON()METHOD)
S3	33942	((MULTIPLE OR LOGISTICAL OR TREE)(2N)(REGRESSION OR LATTICE OR DISPLAY))
S4	400	(DETERMIN??? OR DISCOVER? OR ESTIMATE??? OR ASSESS OR CALCULAT???) (2N)(IMPLIED()(VOLATILITY OR RISK OR RISKINESS OR UNCERTAIN? OR IV))

S5 10 S1 AND S3  
 S6 7 S5 AND S4  
 S7 6 RD (unique items)  
 S8 3 S7 NOT PY>2002  
 S9 5 S1 AND S2  
 S10 5 S9 NOT S6  
 S11 3 S10 NOT PY>2002  
 S12 1 RD (unique items)  
 S13 0 S2 AND S3 AND S4  
 S14 5 S2 AND (S3 OR S4)  
 S15 5 S14 NOT (S8 OR S12)  
 S16 2 S15 NOT PY>2002

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08208545    **Supplier Number:** 17630221 (USE FORMAT 7 OR 9 FOR FULL TEXT )  
**The valuation of cash flow forecasts: an empirical analysis.**

Kaplan, Steven N.; Ruback, Richard S.  
Journal of Finance , v50 , n4 , p1059(35)  
Sep , 1995  
ISSN: 0022-1082

**Language:** English

**Record Type:** Fulltext; Abstract

**Word Count:** 14054    **Line Count:** 01155

...the historic arithmetic average market equity risk premium. We also examine the relation of the implied risk premia to firm size, firm book-to-market ratios, and systematic risk measures to determine...

...book-to-market ratios, but not to measures of systematic risk. We find that the implied risk premia are not significantly related to firm size or pretransaction book-to-market ratios, but...

...Section III presents the valuation results and compares those results to transaction values. Section IV calculates implied risk premia and compares them to firm betas, industry betas, firm size, and firm book-to... of option pricing. Whaley (1982) performs an analysis similar in spirit to ours for pricing American call options on dividend-paying stocks using variants of the Black-Scholes option pricing model. He finds mean... or cost of capital that equates the estimated value to the transaction value. The implied risk premium equals the difference between the implied discount rate and the yield on long-term Treasury bonds at the time of the projections. The implied risk premium represents the product of the implied market equity risk premium and an asset beta. We estimate an implied market equity risk premium by dividing the implied risk premium by our market-based asset beta (where the market-based asset beta is calculated using...

...mean is 16.28 percent, and the standard deviation is 2.69 percent. The implied risk premium, calculated by subtracting the contemporaneous long-term Treasury bond yield, has a median of 7.08 percent...

...however obtained, would improve the accuracy of discounted cash flow techniques.

B. Relation of Implied Risk Premia to Systematic Risk, Size, and Book-to-Market

In this section, we examine the relation between our implied risk premia and 1) firm asset betas; 2) industry asset betas; 3) transaction size; and 4) company...

...expected returns are related to systematic risk. By examining the determinants of the individual implied risk premia in our sample, we provide evidence on how the market determines expected returns. We use...

...to-market ratios.)

Table VI presents univariate regressions of the risk measures on the implied risk premium. The regressions indicate that the implied risk premium is positively related to both beta measures. In the two univariate regressions, however, neither of...

...percent level). We also find a significant relation - both parametrically and nonparametrically - between the implied risk premia and the original, levered industry equity betas.

While the risk premia are marginally related to industry betas, Table VI indicates that the implied risk premia are unrelated to firm size - (the log of) transaction value - or to the prebuyout book...

...fact, the firm asset beta becomes significant at the 10 percent level in the multiple regression. Overall, these results suggest a positive relationship between expected returns and systematic or beta risk, but...on the S&P 500 have exceeded Treasury bond returns. The relations between the implied risk premia and both firm and industry betas are positive and marginally significant. In contrast, there are no apparent relations between the implied risk premia and either transaction value, i.e., firm size, or book-to-market ratios. For this...and an average of 2.3 percent.

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Anders, George, 1992, Merchants of...

8/3,K/3 (Item 2 from file: 148)  
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05591354 **Supplier Number:** 12097508 (USE FORMAT 7 OR 9 FOR FULL TEXT )  
**Index futures options in Australia - an empirical focus on volatility.**

Brace, Alan; Hodgson, Allan  
*Accounting and Finance*, v31, n2, p13(18)  
Nov, 1991  
ISSN: 0810-5391

**Language:** ENGLISH

**Record Type:** FULLTEXT; ABSTRACT

**Word Count:** 7168 **Line Count:** 00588

**Abstract:** ...efficiency of security markets. This paper considers the problems of valuing it using the theoretical price of a futures -style option. It was found that there was little consistency between theoretical prices using a... prices, either intertemporally or between in-the-money or out-of-the-money calls. Further, implied volatility was found to be a decaying function of time and, except at times of instability...

**Abstract:**

**Text:**

...efficiency of security markets. This paper considers the problems of valuing it using the theoretical price of a futures -style option. It was found that there was little consistency between theoretical prices using a...

...either theoretical prices or between in-the-money or out-of-the-money calls. Further, implied volatility was found to be a decaying function of time and, except at times of instability...

...futures call options. An understanding of the volatility input will provide additional insights into the pricing process of futures options and may result in the more efficient use of futures markets.

The plan of...

...market prices over time or between different classes of index futures call options; (ii) if implied volatility increases monotonically as time to maturity decreases (Samuelson's hypothesis), and (iii) whether implied volatilities impart any incremental information in forecasting the volatility of share price index futures. Conclusions are contained in Section 6.

## 2. The Index Futures Contract

Futures contracts are marketable forward contracts. In Australia, share price index futures contracts are written on the Associated Australian Stock Exchange's All Ordinaries Share Price Index (AOI...

...of futures contracts - 'margin calls' by the clearing house required to maintain unrealised losses. The price of a futures contract is, in general, different from that of a forward contract. The difference arises from...

...a pure discount bond that matures at the same time as the contract; whereas the futures price is related to the return of rolling over one day bonds until the contract matures...

...over arranging credit for direct leverage purposes (Jaffee [1984]).

## 3. Index Futures Options

The share price index futures option contract traded on the Sydney futures exchange (introduced in June 1985), is an American...

...index points, and new options are automatically created by the futures exchange as the current futures price ( $F$ ) moves. These options are created so as to try and ensure that there is...by margin calls), while payment for United States futures options is up front. So to price the futures-style option contract current in Australia, a modification of the Black futures formula is required...

...trading volumes are unique to Australia and not representative of overseas markets.(3)

## 4. Theoretical Price of a Futures-style Option

To derive a pricing formula for the AOI futures option, we require the...

...is generated by the above stochastic process, then

[MATHEMATICAL EXPRESSION OMITTED]

where

$C$  is the price of a futures call option

$F$  is the underlying futures price

$T-t$  is the time to expiry in years

$X$  is the futures option exercise price

$N(.)$  is the standard normal distribution function



$r$  is the riskless rate of return  
But...

...and Asay [1982]). The Black formula is modified by setting  $r=0$  which gives the futures -style option pricing formula relevant to Australian conditions:

[MATHEMATICAL EXPRESSION OMITTED]

where  $[\sigma^2]$  is the variance of the rate of return on the share price index futures contract.

This model, which we apply in our empirical tests, assumes that variances and interest rates...

...interest rates are stochastic then marking-to-market requirements will enter both the futures and futures option pricing equations and will be a function of the covariance between the forward futures price and short term interest rates over the life of the option (see Turnbull and Milne...

...focus on the behaviour of volatility is more likely to give further insight into the pricing of futures options rather than on fine tuning different pricing models, especially in Australia.

#### 5. Data and...

...with the daily highs and lows and the closing price of the All Ordinaries Share Price Index futures. Closing prices were used for the futures price ( $F$ ) to approximate continuous trading; and it was assumed that trading took place in both...we have chosen to test, other than they are not consistent with market prices (and implied volatility).(11)

Implied Volatility

Market participants' ex ante assessment of futures price volatility or implied volatility can be calculated from the prices of options on futures contracts by setting them equal to  $C$  and...

...prices provide unbiased estimates of ex ante futures volatility, then market participants should anticipate increased futures price volatility as the maturity date of a contract approaches. Previous empirical evidence is mixed. Ball...

...a standard t-test will detect a linear trend in daily ex ante assessment of futures price volatility by market participants.

Table 2 shows that in four of the eight quarters the...

...sugar futures options but similar to those for gold futures. So the null hypothesis of implied volatility increasing as time to maturity decreases, is rejected. Further, the evidence suggests that market participants' ex ante assessment of futures price volatility is a decaying function of time to maturity, and is consistent with the time...

...Tandon (1986) and Melke and Noti (1988).(12)

The last hypothesis tested is whether the implied volatility is better at forecasting future share price index volatility than historic volatility. Table 3 shows...prices and the theoretical price obtained from using our estimates of historical volatility and the Futures -style option pricing model, either over time or between in-the-money or out-the-money call options...

...as to why the observed range between historic volatilities and market prices are so wide.

Implied volatility was found to be a decaying function of time. In other words, investors input a...

...and bond markets to replicate the option payoff. For example, suppose traders can forecast the futures price variability better than implied variance. When implied variance is high (compared to forecast), they should ...

...variance is higher than implied variance then the opposite positions should be taken. Secondly, the multiple regression equation suggests that implied volatilities impounded in call prices do not reflect all past information...

...empirically untested

- \* in both the above cases we are jointly testing market efficiency and the Futures-style option pricing model

- \* there are reservations about the quality of data collected-call prices and futures prices...

...to forecasting and explaining index futures volatility implicit in both historic and implied volatilities, and implied volatility may be a highly relevant indicator of impending large or unusual volatility. So anyone wishing...

...should be incorporating information extracted not only from past measures of volatility but also from implied volatility. But note that it is not easy to forecast futures volatility; the [R.sup.2...

...We especially recommend empirical studies which lead to an increased understanding of the behaviour of implied volatility and its consistency with historic volatility. For example, this study could be extended to measures of historic volatility and implied volatility found in this study. Continuing this study over a longer time period would test whether...

...explaining the pricing function of the underlying index futures contract

- \* and using a more complex futures option pricing model, would be desirable.

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[Meisner, J...model.  
Recall, that  
institutional features in Australia mean that interest rates do not  
enter the Futures -style option  
pricing formula.  
But in fact, the rate of interest paid on initial deposits is less  
than...

...regression methods were used to test the following further hypotheses:

- i)  
whether the relationship  
between implied volatility and time was constant; ii) whether the  
relationship was linear; and  
(iii) whether the  
relationship...

12/3,K/1 (Item 1 from file: 636)  
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05037835 **Supplier Number:** 76736208 (USE FORMAT 7 FOR FULLTEXT)

**Modelling The Volatility Smile.**

Derivatives Week , v 10 , n 26 , p 5  
July 2 , 2001

**Language:** English **Record Type:** Fulltext

**Document Type:** Newsletter ; Trade

**Word Count:** 866

**Supplier Number:** (USE FORMAT 7 FOR FULLTEXT)

**Text:**

The aim of this article is to build an easy model that explains the  
implied volatility structure observed in the market. In the equity market  
we have a very pronounced skew...

16/3,K/2 (Item 2 from file: 148)  
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10405706 **Supplier Number:** 20897123 (USE FORMAT 7 OR 9 FOR FULL TEXT )

**Partial residual plots in generalized linear models.**

Cook, R. Dennis; Croos-Dabrera, Rodney  
Journal of the American Statistical Association , v93 , n442 , p730(10)  
June , 1998

ISSN: 0162-1459

**Language:** English

**Record Type:** Fulltext; Abstract

**Word Count:** 6917 **Line Count:** 00585

...dependent variable, which is used in iterative estimation procedures  
such as that based on the Newton - Raphson method (see, e.g., McCullagh  
and Nelder 1989, p. 40).

The definition of a partial residual...Lemma 1.

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